المادة: نَجْمَة الجبور المحاضرة: المس بعة القسم: ريا جيئات رحم السنة: المابحة - Port Tiple R R recibion A (1) O xxx [x,x]=0 (2) x n, y, 3 6 A; [n, y, 3] = [n, y] + [y, z] @ Vac R V n, Je A : a [n, y] [ kn, d] (w ~ 2, J, J E A : [2, [3, ]] + [3, [3, n]] + [3, [m, ]] (1) A (A ) [a,0] = 2 (D) da, b (A) [a,b] = [b,a] (3) Nab, ceA; [a, [b, c]] = [b, [a, c]] + [c, [b, a]] is a E A is w ε΄ς νούς [α, ο] = [α, ο] = [α, ο] + [α, ο] - [α 81 (2) A C in [a/o] = [a/o] + [a/o] + [a/o] + [a/o] - [a/o] + [a/o] +

مركز تصور كلبة العلوم للخدمات ال

المادة: المحاضرة:	القسم: ' السنة:
Ya, b EA [a+b, a+b] = [a	-b, a] + [a+b, b] (2)
O = [b,(	a] + [a,b] + [a,b] - [b,b]  a] + [a,b] + [a,b] - [b,b]
[b,a]	) = [a,b]
[a, [b, c]] +[b, [c,a]	
[a, [b, c]] = -[b, -[	[c,a] = [c, [a,b]]
	a, c]]- [b,a]] e]]+[e,[b,a]]
Di Ties l'il chim A i	تعرین می ایان می ایان می ایان می ایان می ایان می ایان این می ای
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	A=0
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	Sie char is elle EA a sipài
e=[e,e]=	ن عدم ناع م دان منه عدم نان م دان م دان م دان م دان م دان م دان منه د
a= [a,e]	= [ao] = o
, t'	$\Delta = 0$

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## محاضرات الدفتر

Construction of the property o	المادة : المحاضرة :	القسم: ' السنة:
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		الو جو تيس موجد کي
A α, b, c ∈ A (α,b) c = α(b,c)    A α α α α α α α α α α α α α α α α α α		: c. P.M.
A α, b, c ∈ A (α,b) c = α(b,c)    A α α α α α α α α α α α α α α α α α α	CIE A SICIO	لكن ٨ هرزة ضير المات ٦ و لمنه عن
R = 111   A   A   C   C   A   A   C   C   A   A	Va, b, c EA (ab).c	= a(b.c)
(a,b) = ab - b a  [a,b] = ab - b a  [a,b] = ab - b a  [a,b,ceA [a,b] = aa - a a = b  -ac,b,ceA [a,b] = (a,b) - (b,c)  -ac,b,ceA [b,c]  -ac,b,ceA [b,c]  -ac,b,ceA [b,c]  -ac,b,ceA [b,c]  -ac,b,ceA [a,b] = (a,b)  -ac,b,ceA		
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$[a,b] = ch - b \cdot a$ $[a,b] = aa - aa = b$ $[a,b,c \in A  [a+b,c] = (a+b) \cdot c - c(b+b)$ $= ac + bc - cb$ $= ac - ca + bc - cb$ $= ac - ca + bc - cb$ $= ab + c - ca$ $= ab + a - ca$ $= (ab - ba) + (ac - ca)$ $= [a,b] + [a,c]$ $[a,b] = x(ab - ba)$ $= x(ab) - x(ba)$ $= (xa)b - b(xa)$ $= (xa,b]$		
$ \begin{array}{lll}                                   $		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		ا كتيت
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	D-4 a E A : [a, a] = aa-a0	
= ac + bc - cb $= ac - ca + bc - cb$ $= ac - ca + bc - cb$ $= ab + c - ca$ $= ab + ac - ca$ $= (ab - ba - ca)$ $= (ab - ba) + (ac - ca)$ $= (ab - ba) + (ac - ca)$ $= ac + bc - cb$ $= ab + c - cb$ $= ac - bc - ca$ $= ac + bc - cb$ $= ac - bc - cb$ $= ac - bc - cb$ $= ac - bc - cb$	1 Va, h, c EA [ath, c] = C	(a+19) C - C ( bx +b)
[a,b] = [b,c] $[a,b] = [a]$ $[a,b] = [a]$ $[a,b] = [a,c]$ $[a,b] = [a,c]$ $[a,b] = [a,b] = [a,b]$ $[a,b] = [a,b]$	=- G.	chibe- Eg- Cb
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$= a \cdot b \cdot 3 \cdot 6(-ba - 6a)$ $= (ab - ba) + (ac - ca)$ $= (ab) + (ac - ca)$ $= (ab) + (ab - ba)$ $= (ab) - x(ba)$ $= (xa)b - b(xa)$ $= (xa,b)$		,c]-+[b,c]-
$= a \cdot b \cdot 3 \cdot 6(-ba - 6a)$ $= (ab - ba) + (ac - 6a)$ $= (ab) + (ab - ba)$ $= (ab) - x(ba)$ $= (xa)b - b(xa)$ $= (xa,b)$	Tile Control of the C	<u> </u>
= [a,b] + [a,c] $= [a,b] + [a,c]$ $= x(ab) - x(ba)$ $= (xa)b - b(xa)$ $= (xa,b)$		
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$3) \forall \alpha \in \mathbb{R}  \forall a,b \in \mathbb{A} : \alpha(a,b) = \kappa(a,b) = \kappa(a,b)$	= (ab-ba) + (ac-	(a)
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$= (\alpha a)b - b(\alpha a) = -(\alpha a)b - b(\alpha a)b - a(\alpha a$	3 YXER YabEA;	$\alpha(a,b) = \alpha(ab-ba)$
= [xa,b]		$= \alpha(\alpha b) - \alpha(b\alpha)$
		= (xa)b-b(xa)
WabceA; [a, [b, c]] = a[b, c] - [b, c).a		= [xa,b]
( Va,b, ce A; [a, lb, c] = a[b, c] - [b, c).a	2 (2) (2) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	
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## محاضرات الدفتز

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[c,[h,c]]+[b]c	ib_bal_(a	b-ba) C	
-Cab	(ba) ab	$c + b x \overline{c}$	
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3) V-2,J	EA d([n	+[6,(m)b]=([6.	[2, d(4)]
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Va, b EA; (d, +d+)(-1	[a,b])=d([a,b])+d=([a,b])
-[d(a), b] + [a,d(b)]	(d2(a))) + [a, d2(b)]
-[d,(a)+d,2(a),b]+[c	, d. (b) - d2(b) -
1	(a) + a/a/ (b)
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~ n, J E A ; (a) ( [ ~, y	])=xd([x,j])
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